Operational Evolution Partnership

An Introduction to FAA's Integration & Implementation Plan for NextGen

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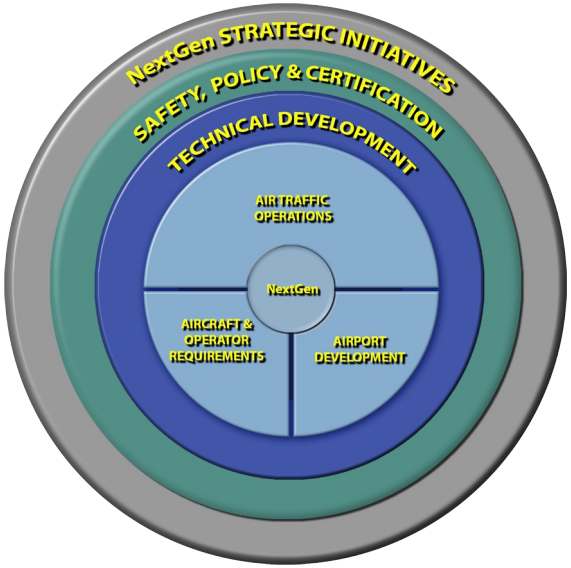
NASA All-Hands Meeting

July 27, 2007

Federal Aviation Administration

OEP is FAA's path to NextGen

"This Operational Evolution Partnership will be the mechanism by which we inform our owners, customers, and aviation community of our plans and progress towards the NextGen vision…"

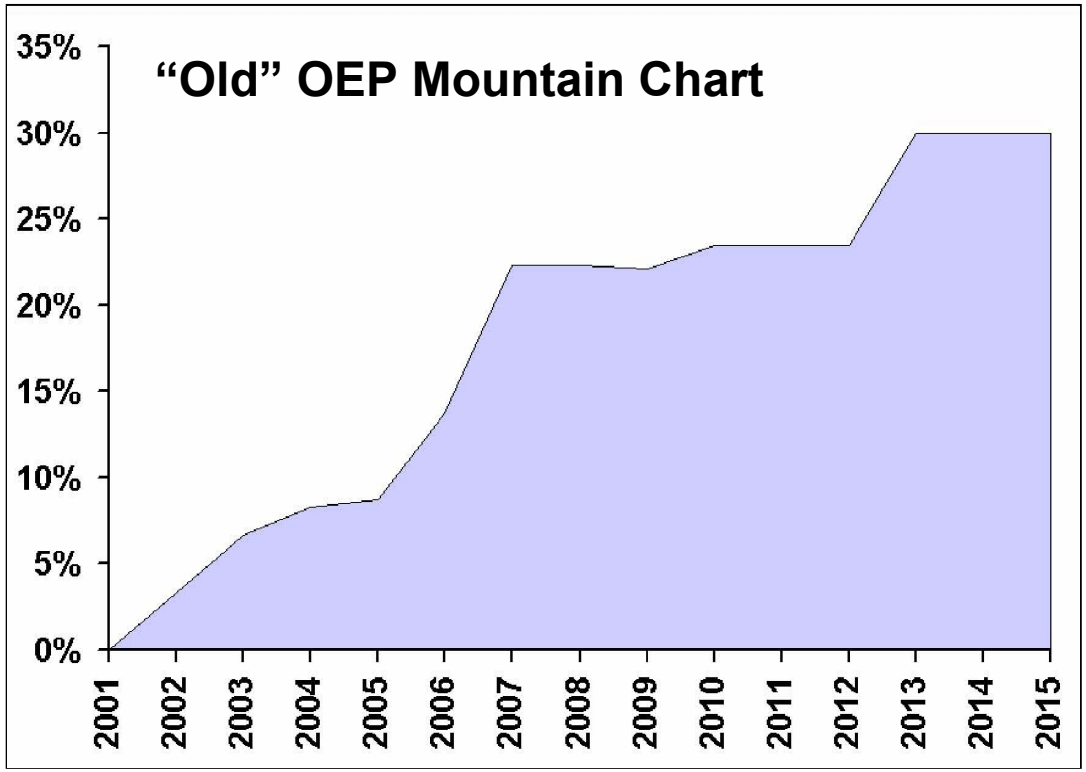


-- Marion C. Blakey, FAA Administrator, before the Senate aviation subcommittee, May 2006

Why OEP?

The Right People, Right Process

- **Cross-Agency Participation**
- **Cross-Community Support**
- **Proven Results**

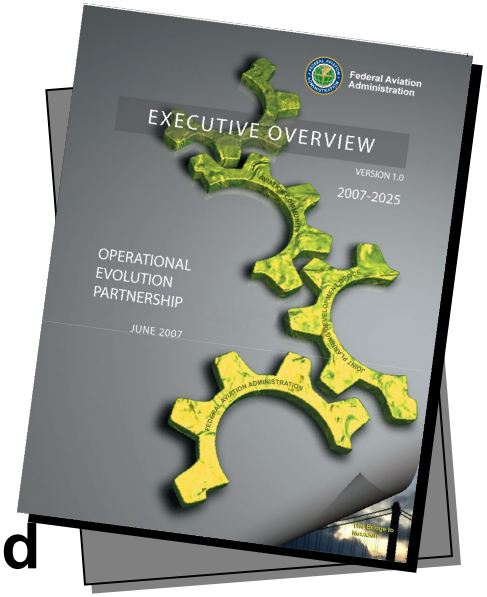


Goal Achieved by 2013:
30% increase in effective capacity

What You'll Learn Today

- What OEP is
- Who has authority over OEP
- How OEP works
- Where OEP must go from here

What is OEP Version 1?



- **Defines framework for FAA's NextGen implementation plan**
  - Scope is broader than capacity
  - Reflects NextGen vision
- **Demonstrates how FAA's integration & implementation plan will be executed**
  - To ensure development processes are not just parallel, but complementary
- **Aligns research & development with NextGen objectives**
- **Provides high-level "big picture" content**
- **Initiates industry collaboration process**

OEP online: www.faa.gov/programs/oep

Operational Evolution Partnership

Plus….FAA Cross-Agency Integration

Who has authority over OEP?

OEP Associates Team

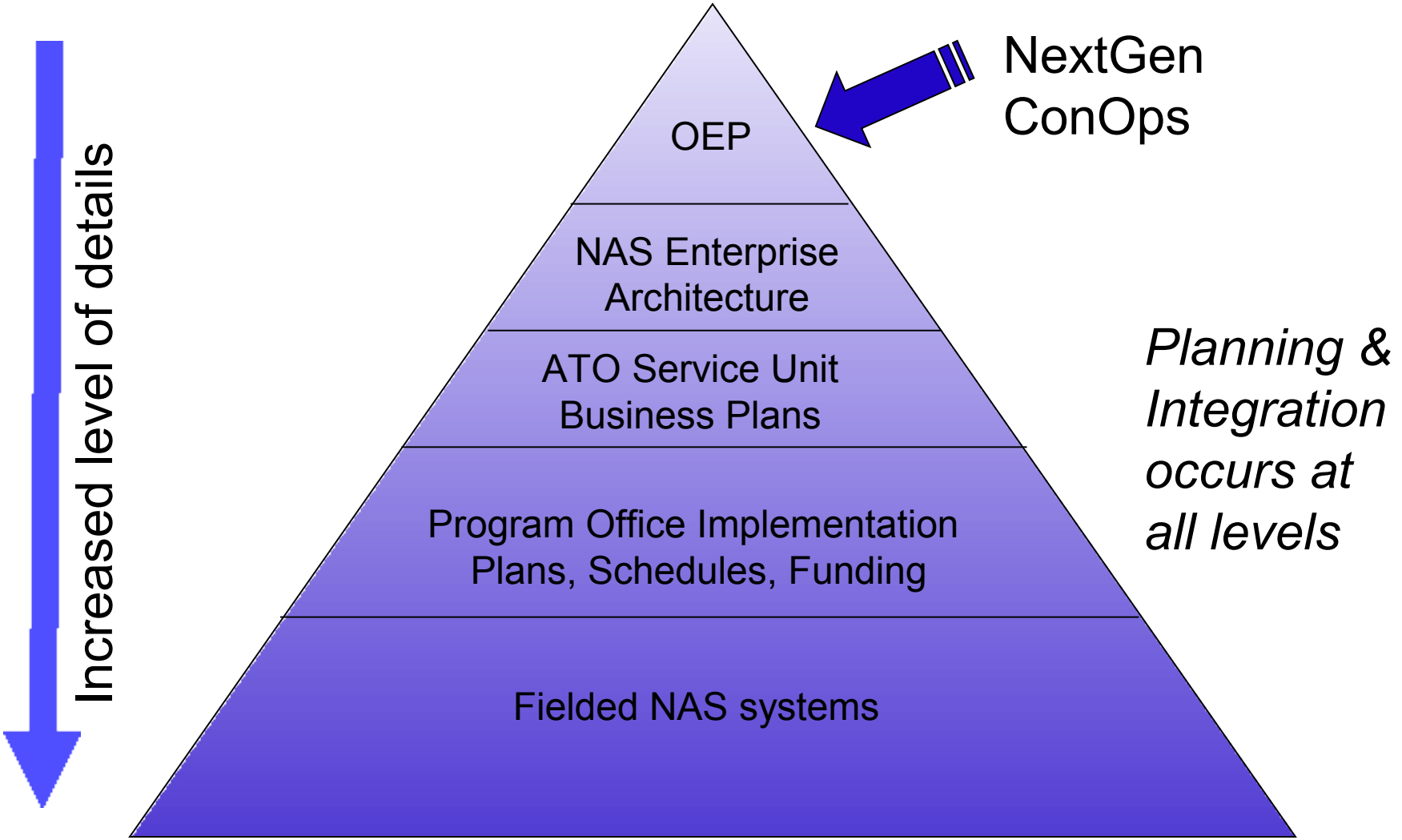
Advised by the OEP Review Board

Guided by Ops Planning VP Vicki Cox

How is FAA Using the OEP?

- **FAA-wide strategic planning reflects NextGen vision**
  - Guiding budget formulation
  - Prioritizing resources
  - Focusing research & development on NextGen
  - Integrating program planning to achieve capabilities

OEP In Context



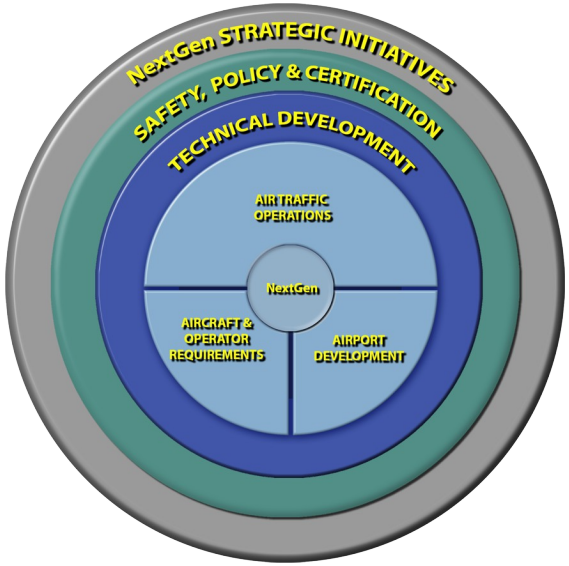
OEP Focus is on the Mid-term (2012-2018)

- Without improvements to the Air Traffic System, delays are projected to increase 62% by 2014
- 27% increases in domestic traffic projected for 2016
- Studies have shown that controllers cannot handle 25% increases in traffic in the busiest sectors using tools available today

Bottom line:

Failure to accommodate demand will have severe economic impact inside and outside the aviation industry

Defining the OEP Domains



- **Airport Development**
  - New concrete
- **Air Traffic Operations**
  - Transformational capabilities
- **Aircraft & Operator Requirements**
  - Avionics

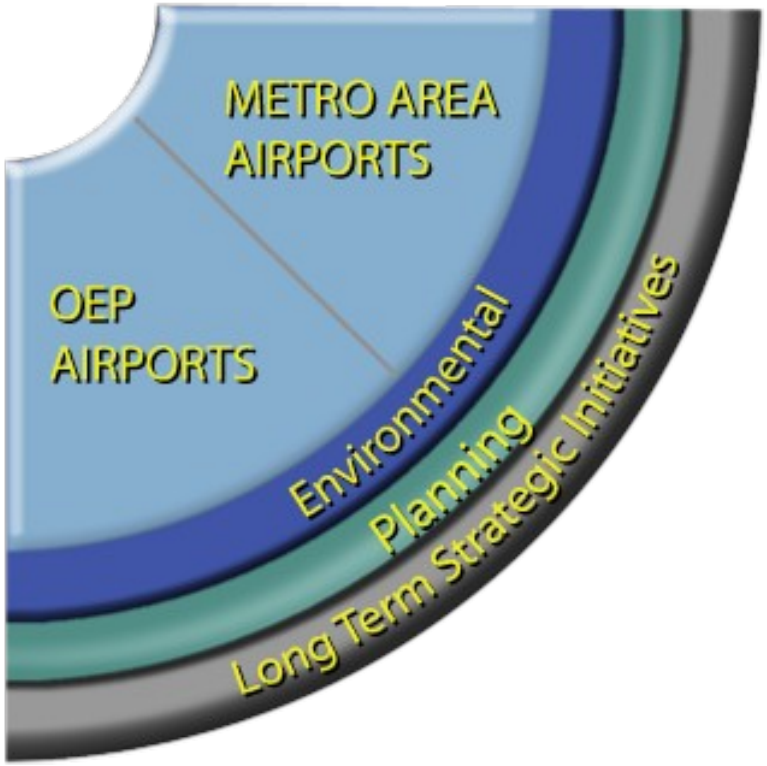
Depiction

Core = FAA Commitments
Transition Rings = Related activities that are less mature
Outer Transformational Ring = Proofs of concepts for NextGen

Airport Development Domain

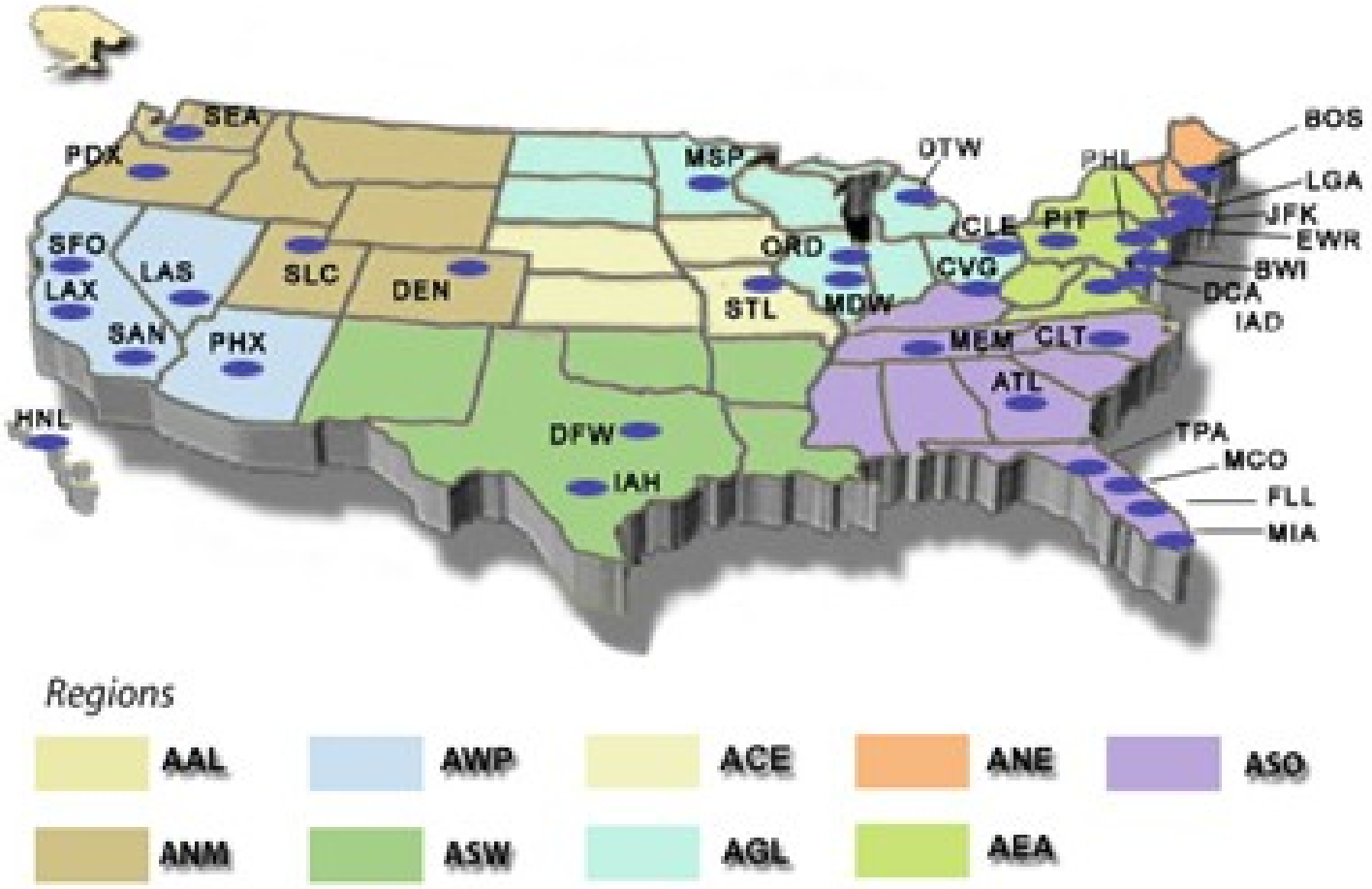
Focus: Airport infrastructure for greater capacity and delay reduction

- **OEP 35 Airports, with a view of longer range planning**
- **Metropolitan Areas**
  - 15 metropolitan areas
  - 80+ non-OEP airports



Airport Development Domain

OEP 35 Airports



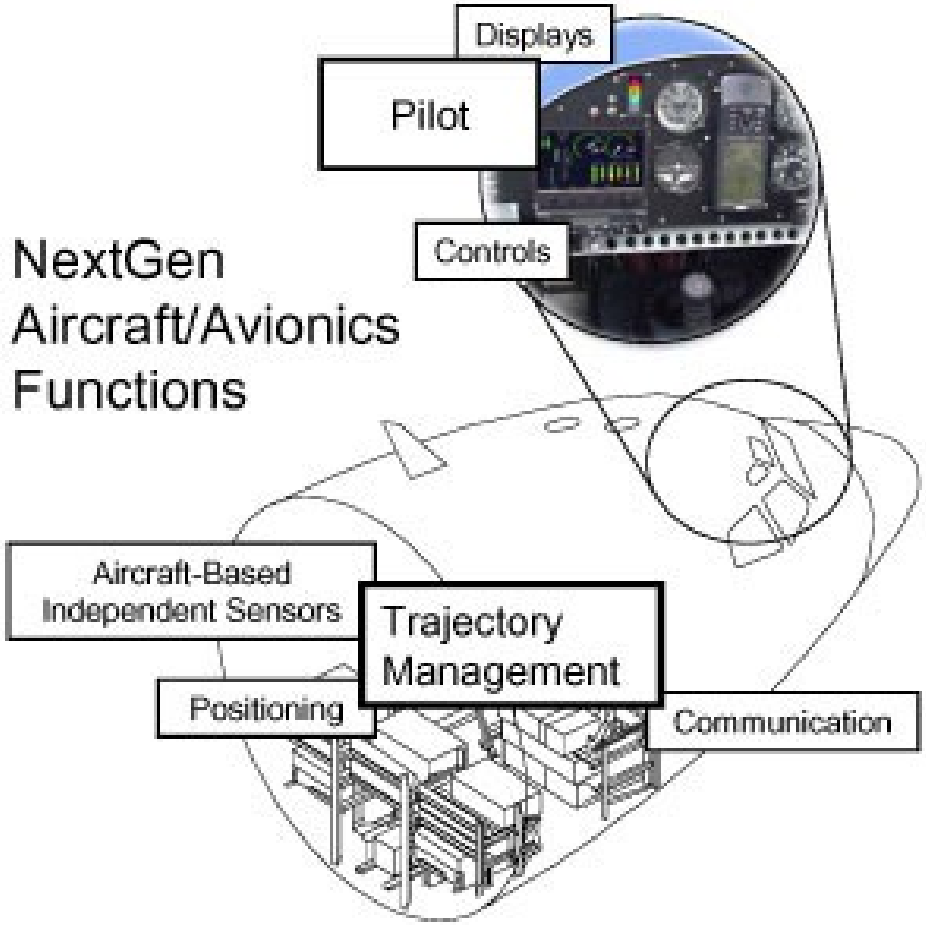
- Monitors planning for and construction of airport infrastructure at the nation's busiest

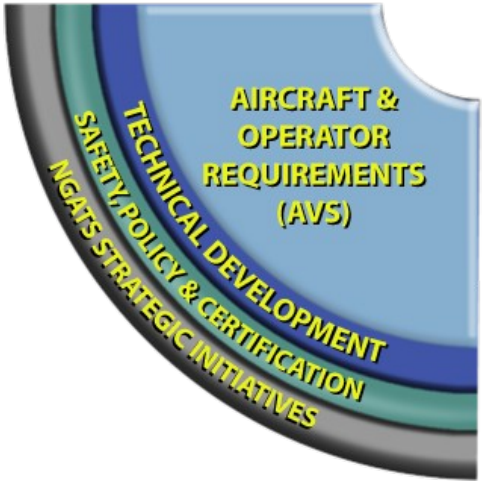
Airport Development Domain

OEP Metro Areas

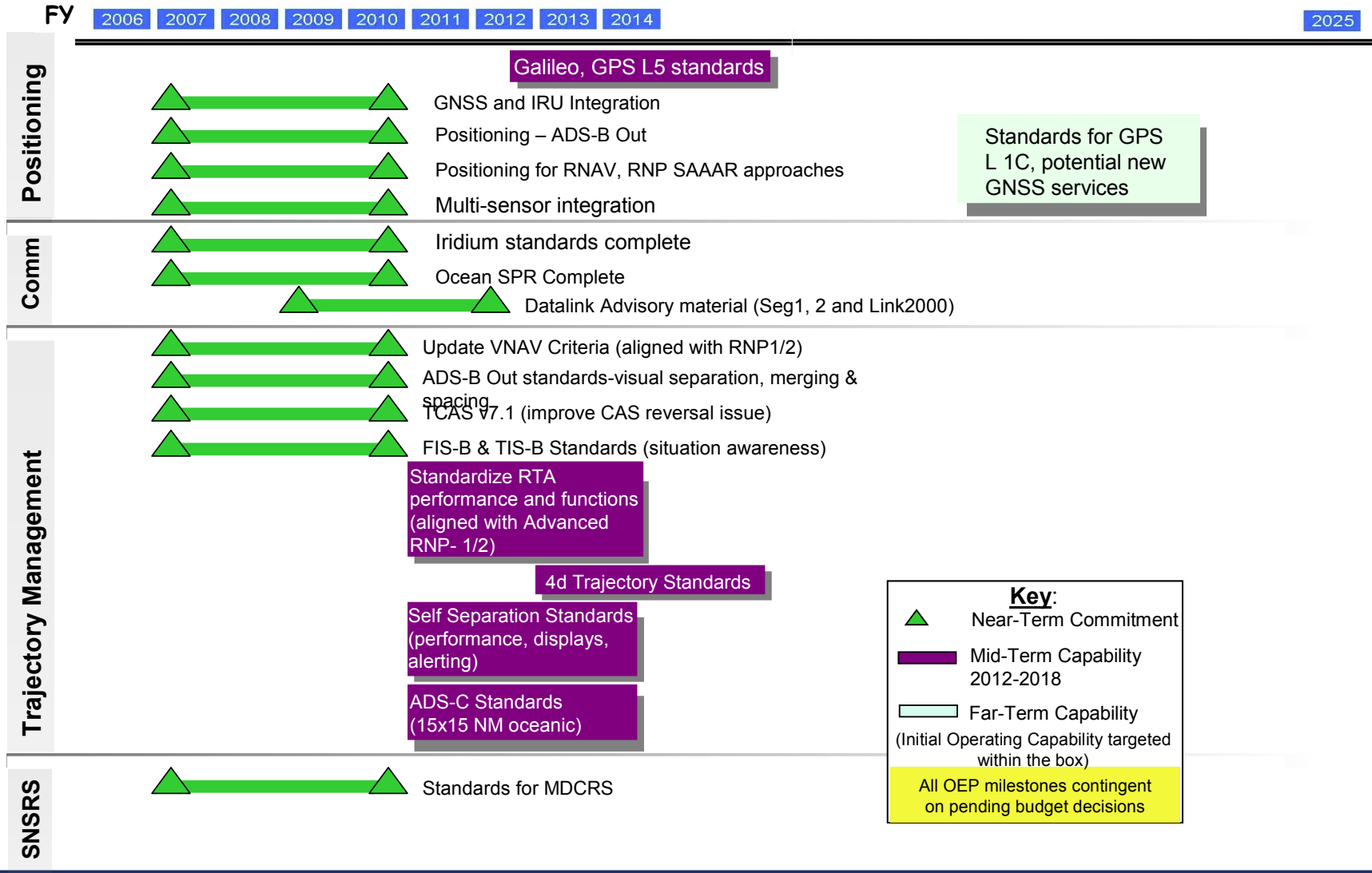
- Promote regional planning
- Identify supporting airports
- Monitor aviation infrastructure investment

Aircraft & Operator Requirements





Aircraft & Operator Requirements



Air Traffic Operations Domain

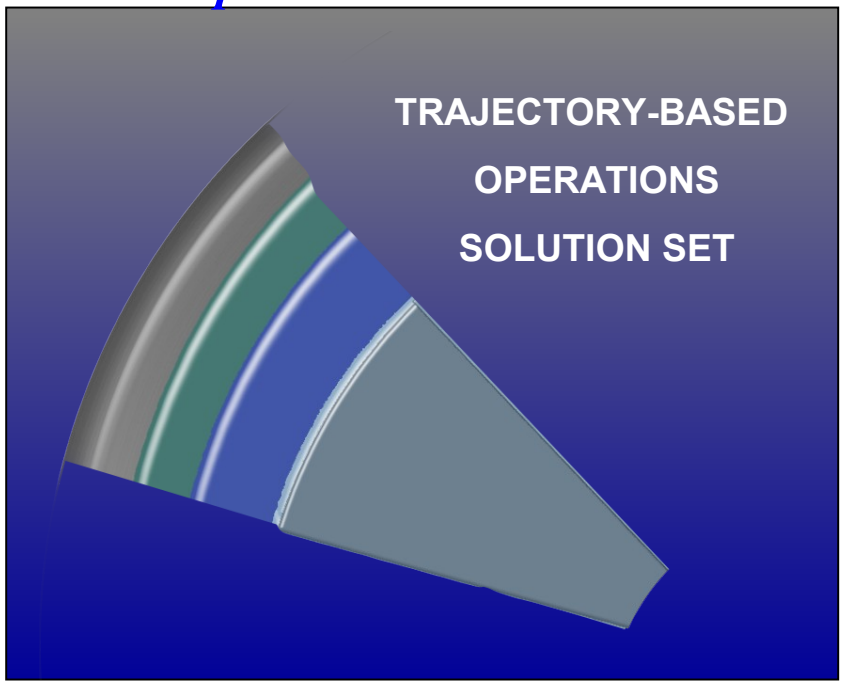
Seven (7) "Solution Sets" targeted to address

Capacity, Efficiency, Safety, Security

of air transportation operations

OEP Solution Set is a portfolio of capabilities

For example:

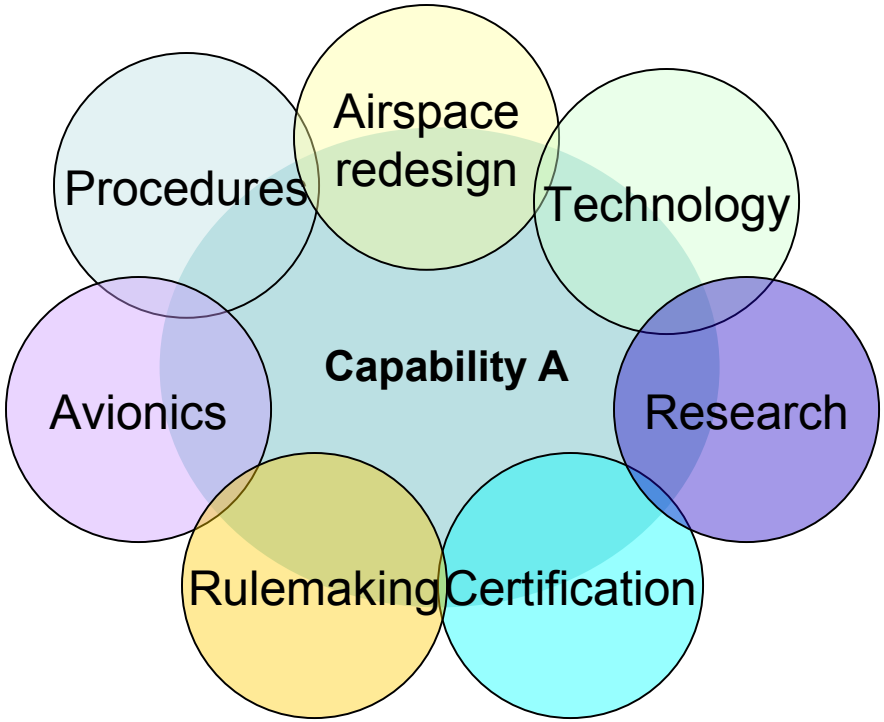


- Automated conflict detection
- Clearances by data vs. by voice
- Sectors managed automatically
- Variable separation based on wake
- Real-time assessment of airspace flow

Capabilities Integrate Activities

Implementation Plans

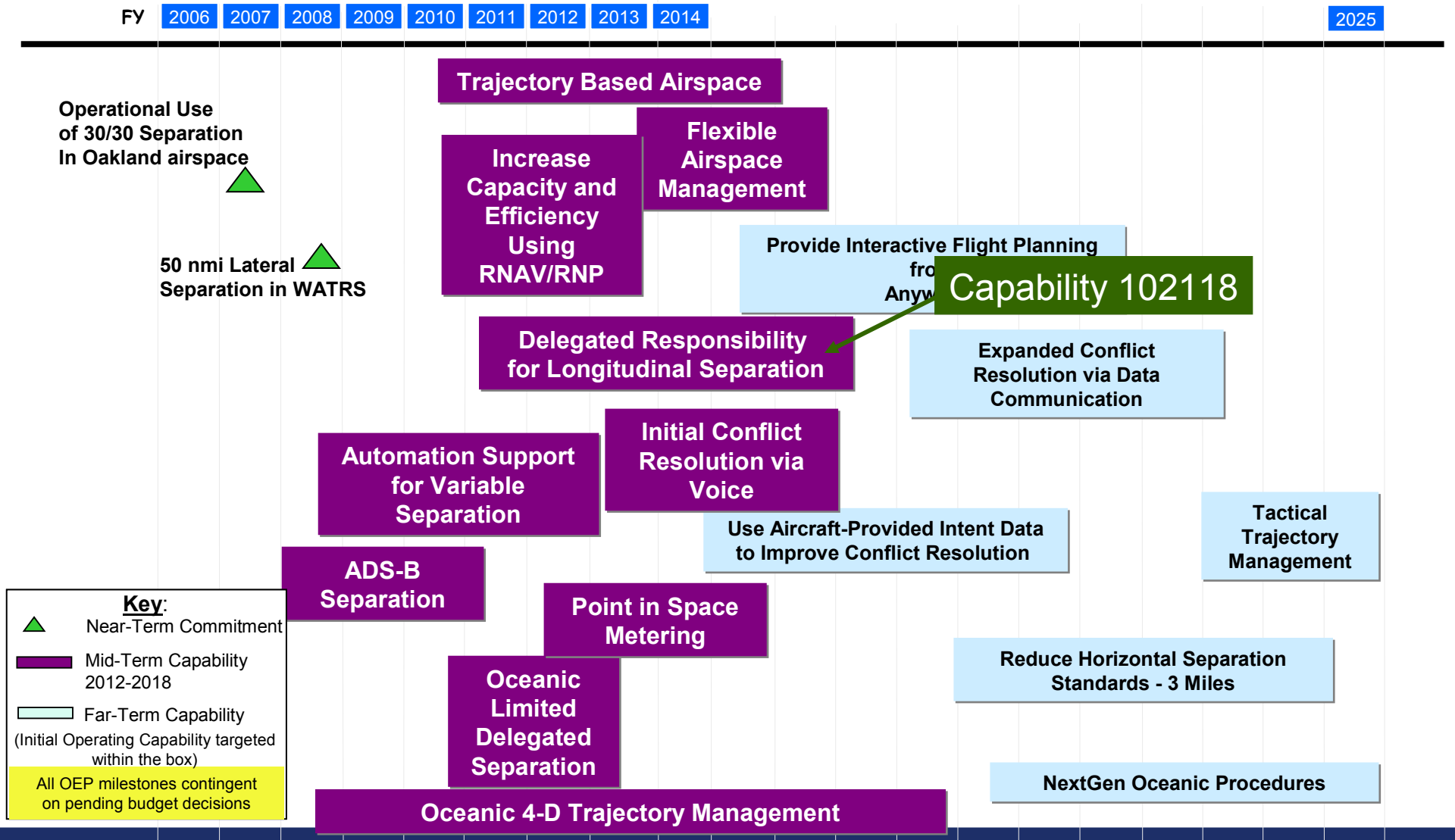
Integrates activities from multiple programs.



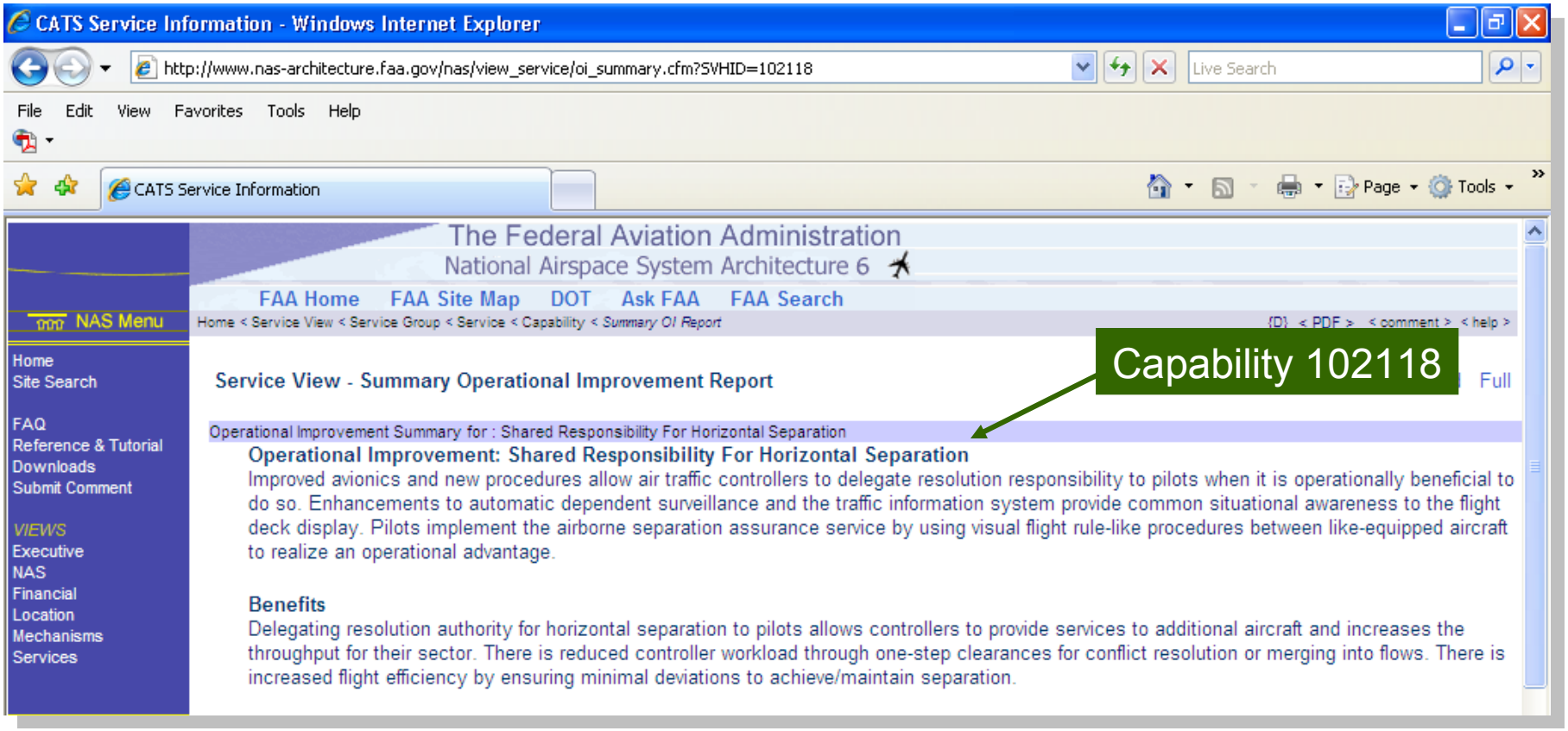
Identifies which activities are needed for a given capability.

OEP will provide cross-agency implementation plans for each capability.

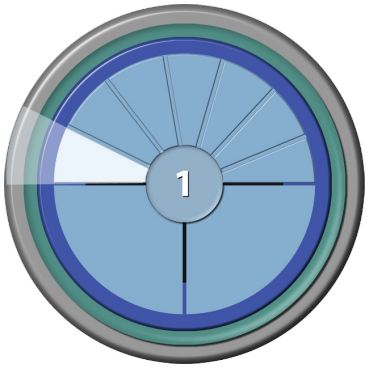
Initiate Trajectory Based Operations



Example of Capability 102118 linkage to NAS Enterprise Architecture



http://www.nas-architecture.faa.gov/nas/view_service/oi_extended.cfm?SVHID=102118



Example:
Initiate Trajectory Based Operations

What is TBO?

- Aircraft fly negotiated trajectories
- ATC moves to management by trajectory
- Aircraft are equipped for full participation in trajectory based operations
- Changes to roles, responsibilities, and procedures that support the move to trajectory based operations
- Tactical Separation Management:
  - Radar controller productivity optimized by enhanced automated conflict detection, resolution, and conformance monitoring
- Transition Clearances from voice to data
- Automating sector task management
- Variable separation based on wake and ops performance
- Real time assessment of tactical airspace changes and flow

How to Read OEP Version 1

www.faa.gov/programs/oep

Solution Set Smart Sheet

- Describes the solution set and its benefits
- Describes the capabilities that build the solution set
- Denotes key transformational and enabling programs

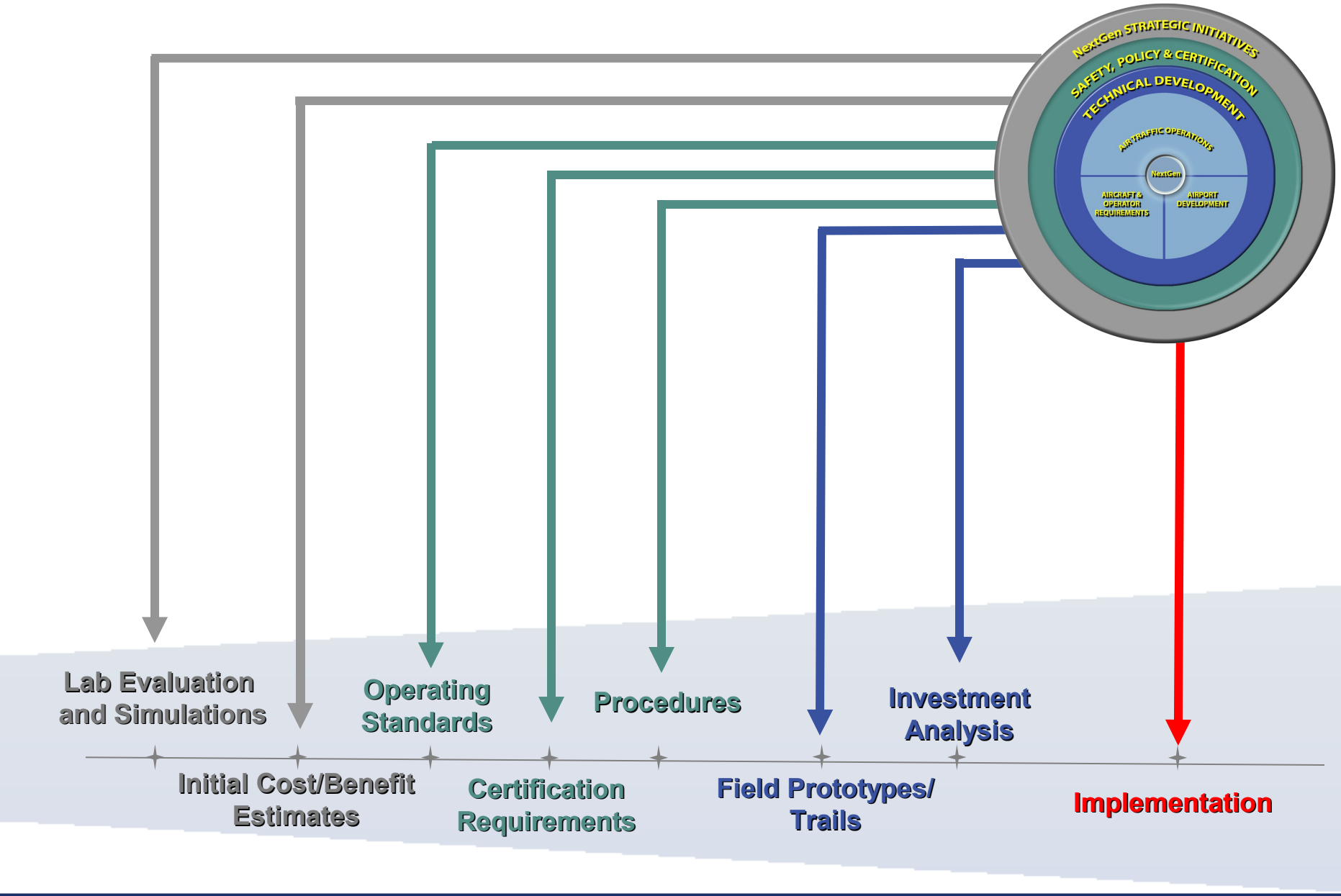
Reference Sheet

- Briefly describes major NextGen programs
  - ADS-B
  - ADAPT

Strategic Timelines

- For each Solution Set

What Comes Next?


NextGen STRATEGIC INITIATIVES
SAFETY, POLICY & CERTIFICATION
TECHNICAL DEVELOPMENT
AIR TRAFFIC OPERATIONS
NextGen
AIRCRAFT & OPERATOR REQUIREMENTS
AIRPORT DEVELOPMENT
Lab Evaluation and Simulations
Initial Cost/Benefit Estimates
Operating Standards
Certification Requirements
Procedures
Field Prototypes/ Trails
Investment Analysis
Implementation

The Path to NextGen

NextGen Strategic Initiatives

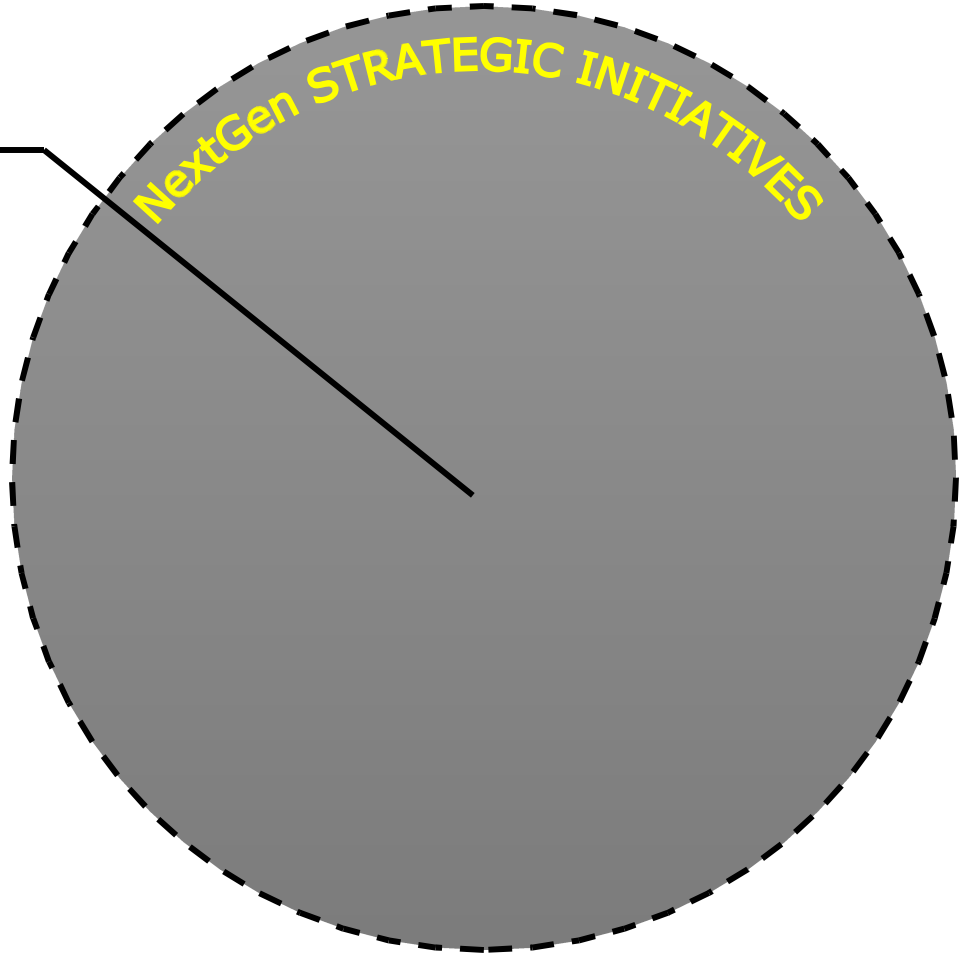
Advanced NAS Concepts

System Performance Requirements

Concept Demonstrations

Initial Benefits and Cost Estimates

Research



The Path to NextGen

Safety, Policy & Certification

Safety Analysis

Operating Policy

Performance Standards

Certification Requirements

Operating Requirements

The Path to NextGen

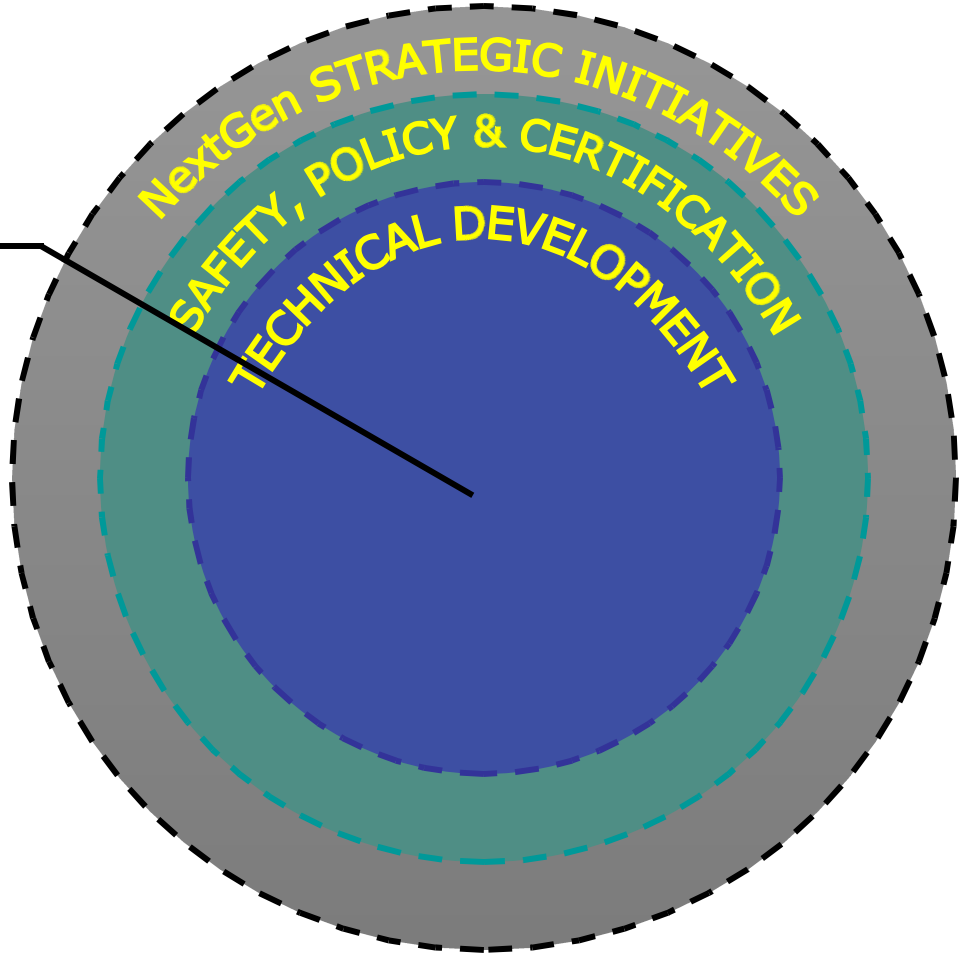
Technical Development

Alternatives Analysis

Field Prototypes

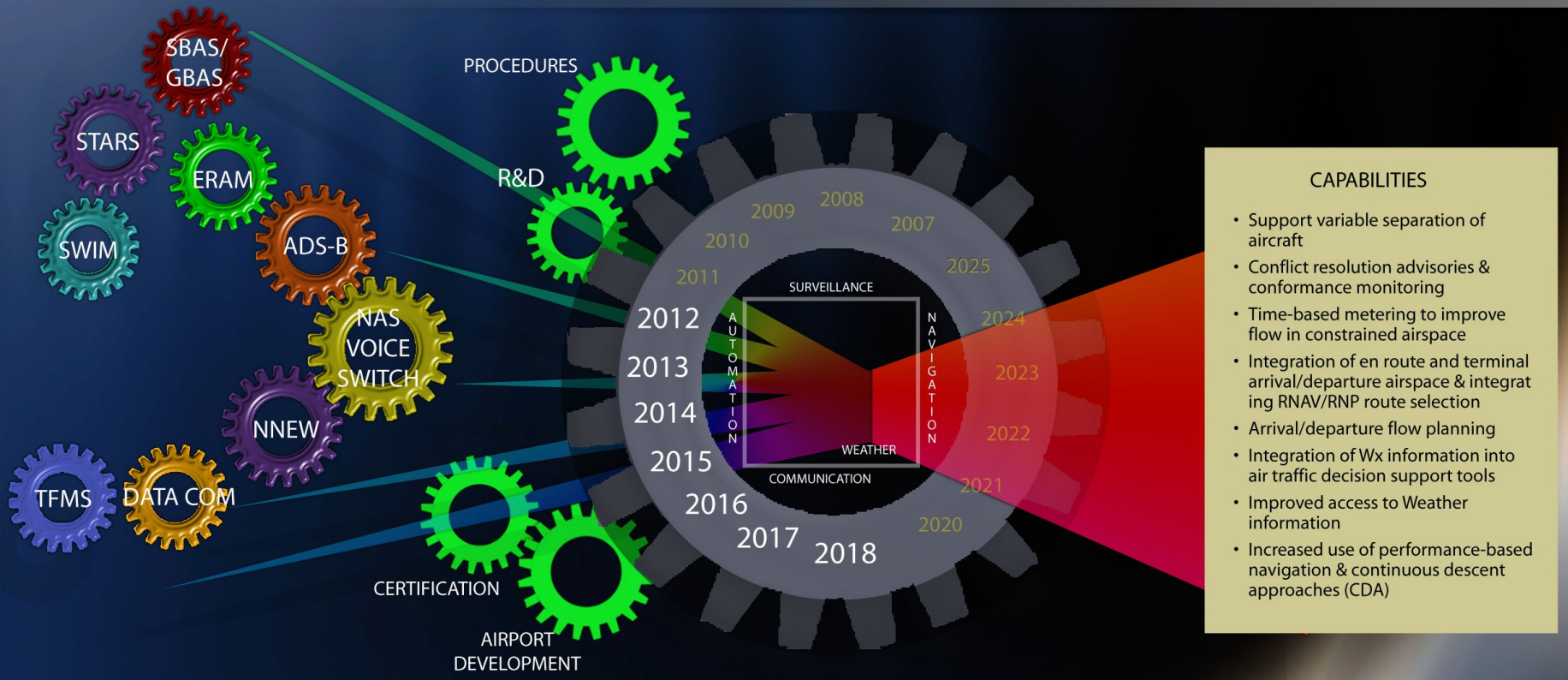
Operational Field Trials

Investment Analysis



OPERATIONAL EVOLUTION PARTNERSHIP

OEP MID-TERM CAPABILITY ROADMAP



- FAA is developing several key programs that provide the dynamic infrastructure that will underpin the NextGen system.
- When combined with today's research and development projects and new air traffic control procedures, these programs will allow FAA to implement NextGen's initial and end state capabilities.
- These capabilities will be described in the OEP Air Traffic Operations domain, which is divided into seven solution sets. These capabilities will be further broken down into a series of activities, the progress of which can be tracked to ensure the FAA remains on target for implementation.
- Initial internationally harmonized avionics will be used in the mid-term where they are available. New airport development will also increase capacity significantly in this timeframe.